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| 10/783,154 | 02/19/2004 | John A. Dickson | 370004-00005 (02-3680) | 1875 |

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INTELLECTUAL PROPERTY
ALCOA TECHNICAL CENTER, BUILDING C
100 TECHNICAL DRIVE
ALCOA CENTER, PA 15069-0001

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| EXAMINER |
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MORILLO, JANEL COMBS

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| ART UNIT | PAPER NUMBER |
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1742

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/783,154

Applicant(s)

DICKSON ET AL.

Examiner

Janelle Combs-Morillo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 021904.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 4-23, 26-39 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.

The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The instant specification provides an enabling disclosure for (heat treatable) aluminum alloys, however, said specification does not enable one skilled in the art to make and/or use the invention as it applies to any metal.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-6, 8-10, 12-18, 21, 23-31, 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benedyk (US 5,911,844).

Benedyk teaches a method of forming age hardenable aluminum alloys by providing a tempered aluminum alloy in an extruded profile or rolled sheet form (column 3 line 8-9),

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applying a retrogression heat treatment to a localized region (column 2 lines 19-20) said retrogression heat treatment including heating to provide adequate softening and water or fluid quenching to room temperature (column 3 lines 46-53); forming said softened material by drawing, punching, or stamping (column 3 lines 17, 65-66) to form the desired shape, natural or artificial aging to exceed the original hardness of the material (column 4 lines 1-4).

Though Benedyk does not teach starting with a T4 type temper- but rather teaches starting with stronger/harder tempers T5 or T6 (which meets cl. 23). However, it would have been obvious to one of ordinary skill in the art to apply the process of retrogressive heat treating to a T4 tempered aluminum alloy, because Benedyk teaches said process greatly improves formability, and wherein the formability achieved by said retrogressive heat treating considerably exceeds that of a traditional T4 temper (Table 1, column 4 lines 60-67).

Though Benedyk does not specify the forming of splines on a tube of said alloy, Benedyk teaches that said retrogressive heat treatment is beneficial for forming extrusions by drawing, punching, or stamping (column 3 lines 17, 65-66) to any desired shape. Therefore it is held to be within the disclosure of Benedyk to form extruded or rolled profiles, including tubes, by stamping (including stamping splines), because Benedyk teaches said process greatly improves the ductility and formability (column 4 line 65).

Concerning claims 2-3, 24-25, Benedyk teaches that said process is applied to aluminum alloys, such as AA6061.

Concerning claims 4-6, 26-28, 34, as stated above, it is held to be within the disclosure of Benedyk to form extruded, rolled, or drawn profiles, including seam and seamless tubes, by stamping splines.

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Concerning claim 10, though Benedyk teaches heating a localized region, it is within the scope of Benedyk to apply said heat treatment over any given length of the aluminum tube, such as >90% of the tube length, by appropriately scaling the size of the tube to the heating unit. Changes in size, shape, or sequence of adding ingredients is prima facie obvious. Mere scaling up of a prior art process capable of being scaled up, if such were the case, would not establish patentability in a claim to an old process so scaled." 531 F.2d at 1053, 189 USPQ at 148, see also MPEP 2144.04.

Concerning claims 8, 9, 12 and 13, as stated above, Benedyk teaches heating only a localized region with an induction coil/ heating unit (column 3 lines 31-35).

Concerning claims 14-18, 30, as stated above, Benedyk teaches quenching to room temperature via water quenching (column 3 lines 52-53).

Concerning claim 21, 31, and 35, Benedyk does not mention aging below room temperature in order to retard natural aging, or aging to achieve T4 conditions. However, changes in concentration or temperature will generally not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical, i.e. they produce a new and unexpected result. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In the instant case, aging at a given temperature is held to be a result effective variable, wherein the expected result is degree of precipitation.

Concerning claim 29, Benedyk teaches said alloy is in a T5 or T6 temper, which meets said direct quench or separate solution heat treating step limitations.

Concerning claim 36, Benedyk teaches aging to achieve T6 properties (column 6 lines 5-6).

5. Claims 7, 19, 20, 22, 32, 33, 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benedyk (US 5,911,844) in view of “Aluminum and Aluminum Alloys” p 305, 311, 319, 462-463.

Concerning claim 7, Benedyk does not mention the temperature said alloy is heated to, but teaches the purpose of said heat treatment is to soften the metallic material for the step of forming (column 2 lines 10-12). “Aluminum and Aluminum Alloys” teaches that softening or annealing takes place at typically 500-825°F, which significantly overlaps the presently claimed heat treatment range. It would have been obvious to one of ordinary skill in the art to heat treat at temperatures of 500-825°F, as taught by “Aluminum and Aluminum Alloys” to provide softening, because Benedyk teaches that the purpose of said heat treatment step is to soften the metallic material in preparation for the step of forming.

Concerning claims 19, 20, 32, 33, “Aluminum and Aluminum Alloys” teaches that “because precipitation hardening will occur at room temperatures, forming or straightening usually follows as soon after quenching as possible” (p. 305, 3rd column). It would have been obvious to one of ordinary skill in the art to form ≤ 8 hrs after quenching because “Aluminum and Aluminum Alloys” teaches that the alloy material is the most ductile/greater formability immediately after quenching.

Concerning claim 22 and 37, “Aluminum and Aluminum Alloys” teaches at p 311 that precipitation heat treatments/aging typically occurs at temperatures 240-375 °F for 5-48 hrs, and wherein T6 tempers have the highest strength properties (p 311, column 1, 3). It would have

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been obvious to one of ordinary skill in the art to perform the process of retrogressive heat treating taught by Benedyk, with a final artificial aging at temperatures of 240-375 °F to provide a near T6 temper, because “Aluminum and Aluminum Alloys” teaches that said temperature range is useful for creating precipitation hardening effect in heat treatable aluminum alloys, and T6 tempers have the highest practical strength (p 311).

Concerning claims 38 and 39, Benedyk does not teach an anodizing layer is applied to said material. However, “Aluminum and Aluminum Alloys” teaches that anodizing layers are applied, such as a coatings $\geq 25 \mu\text{m}$ (p 463, 2nd column) thick, in order to increase corrosion resistance (p 462) and increase paint adhesion (p 463). It would have been obvious to one of ordinary skill in the art to form an anodizing layer on the tube material taught by Benedyk, because “Aluminum and Aluminum Alloys” teaches said layer is beneficial to increase corrosion resistance (p 462).

6. Claim 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benedyk (US 5,911,844) in view of Benoit et al (US 6,452,139).

Benedyk does not teach rotating the metallic tube during heating. However, Benoit, who is also drawn to a retrogressive heat treatment, teaches rotating the tube while heat treating improves the consistency/homogeneousness of the heat treatment (column 2 lines 65-66). It would have been obvious to one of ordinary skill in the art to perform the process of retrogressive heat treating taught by Benedyk, and further rotating the tube while heating as taught by Benoit, because Benoit teaches rotating the tube while heat treating improves the consistency/homogeneousness of the heat treatment.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-39 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-22 of copending Application No.

10/772733. Although the conflicting claims are not identical, they are not patentably distinct from each other because US’733 teaches a substantially similar process of heat treating and forming aluminum alloy splines. Said splines are processed by extrusion, drawing, rolling, heating in induction furnace or coil, water quenching within 8 hrs, forming (see US’733 at claims 1-22), substantially as presently claimed.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

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Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2006/0048556 is similar to the instant invention, but has an effective filing date after the filing date of the instant case.


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCM

June 27, 2006



GEORGE WYSZOMIERSKI
PRIMARY EXAMINER
GROUP 1700